

CLAIMS

WHAT IS CLAIMED IS:

1. A hinge mechanism for a variable displacement compressor comprising:
 - a rotor adapted to be mounted on and rotated by a drive shaft, said rotor having at least one arm extending outwardly therefrom;
 - a hub adapted to be mounted on the drive shaft and to rotate with said rotor, said hub having at least one arm extending outwardly therefrom towards said rotor and adjacent the arm of said rotor; and
 - at least one shoe disposed between the arm of said rotor and the arm of said hub, said shoe adapted to be seated in a pocket formed in at least one of the arm of said rotor and the arm of said hub, wherein said shoe facilitates a slanting of said hub and transfers rotation from said rotor to said hub.
2. The hinge mechanism according to claim 1, further comprising a guide disposed between said hub and the drive shaft.
- 25 3. The hinge mechanism according to claim 2, wherein said guide is hollow.

4. The hinge mechanism according to claim 1,
wherein said shoe includes a pin extending outwardly to
engage at least one of the arm of said rotor and the arm
of said hub.

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5. The hinge mechanism according to claim 1,
wherein said shoe has a semi-spherical surface formed on
a first side to engage the pocket formed in at least one
of the arm of said rotor and the arm of said hub, and
10 said shoe having a flat surface formed on a second side
to slidably engage the other of the arm of said rotor
and the arm of said hub.

6. The hinge mechanism according to claim 1,
15 wherein an other of the arm of said rotor and the arm of
said hub has at least one slot formed therein to
slidably receive said shoe.

7. The hinge mechanism according to claim 1,
20 further comprising a pin, wherein an other of the arm of
said rotor and the arm of said hub has a slot formed
therein to receive said pin, said shoe has a central
aperture formed therein, and the at least one of the arm
of said rotor and the arm of said hub has an aperture
25 formed therein, said pin adapted to be received in the
aperture of the at least one of the arm of said rotor
and the arm of said hub, the aperture of said shoe, and
the slot of the other of the arm of said rotor and the

arm of said hub to form a hinge connection between said rotor and said hub.

8. A variable displacement swash plate type
5 compressor comprising:

a cylinder block having a plurality of cylinders arranged radially therein;

10 a plurality of pistons, one of said pistons reciprocatively disposed in each of the cylinders of said cylinder block;

a cylinder head attached to said cylinder block;

a crankcase attached to said cylinder block and cooperating with said cylinder block to define a crank chamber;

15 a drive shaft rotatably supported by said crankcase and said cylinder block in the crank chamber;

a rotor mounted on said drive shaft;

20 a swash plate assembly slidably mounted on said drive shaft to thereby change an inclination angle thereof in response to changes of pressure in the crank chamber, said swash plate assembly operatively engaged with said pistons to reciprocatively drive said pistons;

25 a hinge mechanism disposed between said rotor and said swash plate assembly for changing the inclination angle of said swash plate assembly,

wherein said hinge mechanism further comprises:

at least one arm extending outwardly from
said rotor towards said swash plate assembly;

5 at least one arm extending outwardly from
said swash plate assembly towards said rotor
and adjacent said arm of said rotor; and

10 at least one shoe disposed between said
arm of said rotor and said arm of said swash
plate assembly, said shoe adapted to be seated
in a pocket formed in at least one of said arm
of said rotor and said arm of said swash plate
assembly, wherein said shoe facilitates
15 inclination of said swash plate assembly and
transfers rotation from said rotor to said
swash plate assembly.

9. The compressor according to claim 8, further comprising a guide disposed between said swash plate assembly and said drive shaft.

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10. The compressor according to claim 9, wherein said guide is hollow.

25 11. The compressor according to claim 8, wherein
said shoe includes a pin extending outwardly to engage
at least one of said arm of said rotor and said arm of
said swash plate assembly.

12. The compressor according to claim 8, wherein
said shoe has a semi-spherical surface formed on a first
side to engage the pocket formed in at least one of said
arm of said rotor and said arm of said swash plate
5 assembly, and said shoe having a flat surface formed on
a second side to slidingly engage the other of said arm
of said rotor and said arm of said swash plate assembly.

13. The compressor according to claim 8, wherein an
10 other of said arm of said rotor and said arm of said
swash plate assembly has at least one slot formed
therein to slidingly engage said shoe.

14. The compressor according to claim 8, further
15 comprising a pin, wherein an other of said arm of said
rotor and said arm of said swash plate assembly has a
slot formed therein to receive said pin, said shoe has a
central aperture formed therein, and the at least one of
said arm of said rotor and said arm of said swash plate
20 assembly has an aperture formed therein, said pin
adapted to be received in the aperture of the at least
one of said arm of said rotor and said arm of said hub,
the aperture of said shoe, and the slot of the other of
said arm of said rotor and said arm of said swash plate
25 assembly.

15. A hinge mechanism for a variable displacement compressor comprising:

a rotor adapted to be mounted on and rotated by a drive shaft;

5 a hub adapted to be slidably mounted on the drive shaft to thereby change an inclination angle thereof and to rotate with said rotor, wherein at least one of said rotor and said hub has a first arm extending outwardly therefrom, and the
10 other of said rotor and said hub has a pair of second arms extending outwardly therefrom; and

15 a pair of shoes adapted to be seated in a pocket formed in at least one of the first arm and the second arms, wherein said shoes facilitate a slanting of said hub and transfer rotation from said rotor to said hub.

16. The hinge mechanism according to claim 15, further comprising a guide disposed between said hub and
20 the drive shaft.

17. The hinge mechanism according to claim 15, wherein said shoes include a pin extending outwardly to engage the other of the first arm and the second arms.

18. The hinge mechanism according to claim 15,
wherein said shoes have a semi-spherical surface formed
on a first side to engage the pocket formed in at least
one of the first arm and the second arms, and said shoes
5 having a flat surface formed on a second side to
slidably engage the other of the first arm and the
second arms.

19. The hinge mechanism according to claim 15,
10 wherein an other of the first arm and the second arms
include at least one slot formed therein to slidably
engage said shoes.

20. The hinge mechanism according to claim 15,
15 further comprising a pin, wherein an other of the first
arm and the second arms include a slot formed therein to
receive said pin, each of said shoes having a central
aperture formed therein, and the at least one of the
first arm and the second arms include an aperture formed
20 therein, said pin adapted to be received in the aperture
of the at least one of the first arm and the second
arms, the aperture of each of said shoes, and the slot
of the other of the first arm and the second arm to form
a hinge connection between said rotor and said hub.